Kongsfjorden System Flagship

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Recap of Annual meeting

September 27-28, 2022

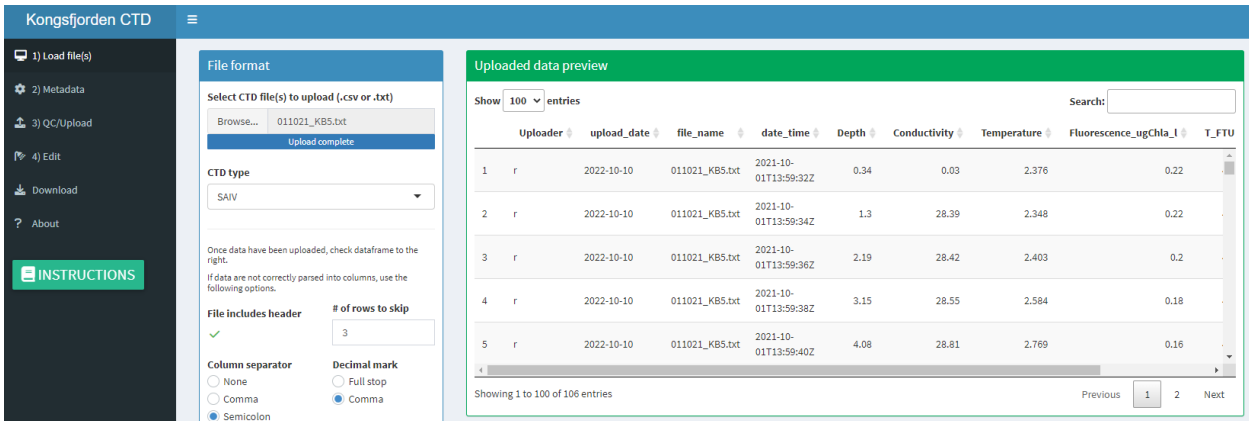
Clara Hoppe (AWI) & Allison Bailey (NPI)

1) **Information and updates from Ny-Ålesund & the flagship**
    a. Certification for renting firearms on Svalbard
        i. New since last year: application to Governor of Svalbard must include a police certificate no older than three months
        ii. See all requirements here: https://nyalesundresearch.no/research-and-monitoring/researchers-guide/safety/#Rental_firearms
    b. Inger Lise Næss, Research adviser, Kings Bay
        i. Would like input from researchers on the Marine Lab and Teisten
        ii. Kings Bay planning a remodeling of the seawater system in the Lab
        iii. Process on rebuilding the science pier is going through another round with the contractor
    c. Anyone with stable isotope data from Kongsfjorden?
    d. In September we had a great "Nutrient Workshop" in Orvieto, where all flagships were involved. During this workshop we came up with the idea of writing two reviews giving a general overview of nutrients around Ny-Alesund - inputs, outputs, links, etc. One review will focus more on fluxes, while the other would focus on stable isotope approaches. The group is now looking for experts on the various marine "components", e.g. phytoplankton, zooplankton, fish, mammals, benthos, ...!
    e. Are you interested in contributing to the review? Then please contact Nora Diehl: ndiehl@uni-bremen.de for collaboration on a review paper on stable isotopes from Kongsfjorden, led by Angela Augusti and stemming from the project “Nutrient cycle - linking the Atmosphere, Terrestrial, Marine and Glaciological Flagship programs in Ny-Ålesund”
    f. Ingrid Kjerstad, Research Coordinator, Norwegian Polar Institute/Sverdrup
        i. The proposed new Environmental Regulations for Svalbard have undergone a prolonged hearing phase, with input from many research institutions, and the final regulations are yet to be released.
    g. The Flagship is open to anyone who wishes to join
        i. signup is by subscribing to the email list here https://nyalesundresearch.no/newsletter/ and selecting “Kongsfjorden System Flagship”
        ii. encourage colleagues and students to join!

2) **3-minute science presentations**
    a. Thanks to the **21 researchers** who talks their work in Kongsfjorden!

3) Kongsfjorden CTD Data Portal

a. Developed by Allison, Clara and Robert Schlegel. An intro to using the online portal was given by Robert



b. Goal is to collect all CTD data from Kongsfjorden into one standardized dataset, that will be published annually to open-access data center like Pangaea, with all contributors as co-authors of the dataset

c. Prior to publishing, other researchers will be able to see metadata (date, coordinates) of other CTD casts

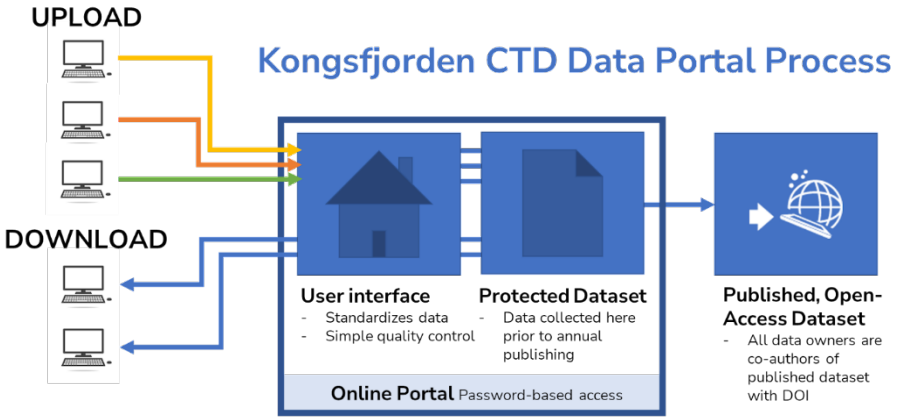
d. Researchers using the Kings Bay CTD will have the option of having the Marine Lab manager upload their data to the portal for them

e. It is soon ready to be launched for everyone in the Flagship—one must ask for a password by sending an email to Robert (robert.schlegel@imev-mer.fr), Clara or Allison

f. We had a discussion at the meeting on quality control of CTD data. Several suggested that narrow cutoffs are risky in Kongsfjorden, with high freshwater input and large trends in temperature. Suggestions for 'plausibility thresholds' were reported from what Flagship researchers submitted in the poll.

g. General point regarding CTD work in Kongsfjorden: It would be useful to create a 'Best practices for CTD profiling' guide for our community, especially for those of us without background in physical oceanography. A small task force will work on such a document.

h.



4) **Future collaboration idea: “International Kongsfjorden Year” (IKY)**
    a. Allison and Clara will head a proposal to the Norwegian Research Council (NFR) (deadline early 2023) for the logistical backbone of a year of weekly sampling in Kongsfjorden. Parameters which could be easily sampled by non-experts, and analysed by Flagship members are welcomed.
    b. Please see the interests and option provided by the rest of the consortium, and provide your individual feedback regarding potential contributions and core parameters in the following document sheets: https://docs.google.com/spreadsheets/d/1voJwmuY411kYD0cN9PeoUXOlSSyMA2UPOi3MxLDJaHk/edit?usp=sharing
    c. We will have a short online flagship meeting on November 25th 2022, 12:15-13:15 (you will get the link later via email from Allison). By then, we will be able to talk about
        i. the outcome of Clara et al.’s IKY-relevant YESSS proposal will be known
        ii. the specifics of the NFR call will also be known (call out in October)
        iii. next steps
    d. Everyone should consider applying for other national or institutional funds to allow collaborations:
        i. Arctic Field Grant possible fall 2023
        ii. Svalbard Strategic Grant pilot projects possible spring of 2023, 2024 ..keep us informed- we’ll have a meeting spring 2023
    e. International Kongsfjorden Year: summer 2024-summer 2025?

Kongsfjorden System Flagship

Thanks to all for a good meeting! Looking forward to keeping in touch,

Allison Bailey and Clara Hoppe, Flagship chairs

NEXT YEAR'S (2023) FIELDWORK TOPICS

based on Kongsfjorden Flagship poll summer 2022

First Name	Last Name	Next year's fieldwork will have the following topic:
Philipp Allison	Assmy Bailey	Seasonal pelagic monitoring primarily at a mid-fjord station from early May until early August including CTD, water chemistry, Chla, POC&PON, phyto- and zooplankton taxonomy. Same as in 2019-2022 plus potentially experimental working on nutrient cycling pending funding
Steeve	Comeau	To measure in situ the metabolism of benthic communities
Sarat	Tripathy	Phytoplankton pigments and Bio-optical Measurements in the Kongsfjorden-Krossfjorden
Carlos	Smerdou	Response of phytoplankton and seaweeds to nutrient enrichment
Jozef	Wiktor	Phytoplankton, macrophytobenthos

Melissa	Chierici	Environmental controls on organisms, ocean acidification state and variability
Agneta	Fransson	Sea ice and seawater carbonate chemistry, nutrients and CO2 fluxes in Kongsfjorden/Krossfjorden, and impacts of glacial water and river water (Bayelva)
Alexander	Michaud	Marine sediment biogeochemistry, microbiology. Glacier surface microbiology, biogeochemistry.
Francisco	JL Gordillo	Nutrient Balance in Seaweeds and phytoplankton during Spring season
Vito	Vitale	We manage routine radiation and UV measurements with automatic instrumentation. We also are involved in activities connected with aerosol measurements at the Gruvebadet lab.
Roberta	Guerra	I am interested in joining scientific field campaigns/missions and lab experiment to minimize research impacts on the understanding of how climate change has and is affecting the carbon cycle (from carbon uptake in the photic zone to export in the twilight zone to sequestration in the sediments) in the Kongsfjorden and the Arctic.
Ida Beathe	Øverjordet	Pollution from sewage
Eswara Venkatesaperumal	Ramasamy	To study the Microplastic contamination of the soil samples of Ny-Alesund and to study the effluent from the wastewater treatment plant at Ny-Alesund for Microplastic content.
Maarten	Loonen	Many topics, but relevant for the Kongsfjorden Flagship are 4 seabird counts on the water in the entire inner Kongsfjord in the month of July. Conclusion: much less birds compared to the three earlier years. Probably continuing with these fjord counts to see if 2022 was a unique low.
Benoit	Lebreton	Flows of organic matter in shallow subtidal mudflats in the Kongsfjorden. Determination of food web structure and functioning using stable isotopes and fatty acids.
Heli	Routti	Mercury sources in marine food web
Hoppe	Clara	Spring bloom monitoring (March-May) for various parameters (e.g. NPP, nutrients, POC/N, Chla,…); experiments with different seeding populations under dynamic light fields
Gerland	Sebastian	1-week campaign with in situ sea ice fieldwork in KF in the second half of April 2023. Day-visits to ice stations at the fast ice edge in Raudvika and Dyrevika. The activity is part of our internal longterm sea ice monitoring, and of FACE-IT.

2022 Kongsfjorden papers

based on Google scholar search

1. S Choudhary, K Neelavanan, SM Saalim: Microplastics in the surface sediments of Krossfjord-Kongsfjord system, Svalbard, Arctic. Marine Pollution Bulletin
2. Syed Mohammad Saalim, Shabnam Choudhary & Rahul Mohan: Sources and Fate of Organic Carbon in West Spitsbergen Fjord Systems: A Review. Journal of the Geological Society of India
3. Lischka, S. , Greenacre, M. J. , Riebesell, U. and Graeve, M.: Membrane lipid sensitivity to ocean warming and acidification poses a severe threat to Arctic pteropods , Frontiers in Marine Science
4. Jasmine Purushothaman, Haritha Prasad, Kailash Chandra: Zooplankton of the Past, Present and Future. Climate Change in the Arctic, Imprint CRC Press
5. De Rovere F, Langone L, Schroeder K, Miserocchi S, Giglio F, Aliani S and Chiggiato J: Water Masses Variability in Inner Kongsfjorden (Svalbard) During 2010–2020. Front. Mar. Sci.
6. Jima, M., Jayachandran, P.R. & Bijoy Nandan, S: Modern Benthic Foraminiferal Diversity Along the Fjords of Svalbard Archipelago: Diversity Evaluation. Thalassas
7. Singh, S.M.; Tsuji, M.; Singh, P.; Mulik, R.U. Elemental Composition and Freezing Tolerance in High Arctic Fishes and Invertebrates. Sustainability
8. Barth-Jensen, C., Daase, M., Ormańczyk, M.R. et al. High abundances of small copepods early developmental stages and nauplii strengthen the perception of a non-dormant Arctic winter. Polar Biol

9. Shabnam Choudhary, G. N. Nayak, Neloy Khare: Biogenic Silica Indicator of Paleoproductivity in Lacustrine Sediments of Svalbard, Arctic. Climate Change in the Arctic, Imprint CRC Press
10. Summers, N.; Johnsen, G.; Mogstad, A.; Løvås, H.; Fragoso, G.; Berge, J. Underwater Hyperspectral Imaging of Arctic Macroalgal Habitats during the Polar Night Using a Novel Mini-ROV-UHI Portable System. Remote Sens
11. Wolf, K.K.E., Rokitta, S.D., Hoppe, C.J.M. and Rost, B.: Pelagic and ice-associated microalgae under elevated light and pCO2: Contrasting physiological strategies in two Arctic diatoms. Limnol Oceanogr
12. Zeng, S., Deng, B., Wang, J. et al. Distribution of gamma-ray radionuclides in surface sediments of the Kongsfjorden, Arctic: Implications for sediment provenance. Acta Oceanol. Sin.
13. Ji-Hoon Kim, Jong-Sik Ryu, Wei-Li Hong, Kwangchul Jang, Young Ji Joo, Damien Lemarchand, Jin Hur, Myong-Ho Park, Meilian Chen, Moo-Hee Kang, Sanghee Park, Seung-Il Nam, Yun Kyung Lee, Assessing the impact of freshwater discharge on the fluid chemistry in the Svalbard fjords, Science of The Total Environment
14. Jong-Ku Gal, Bo Kyung Kim, Hyoung Min Joo, Chorom Shim, Boyeon Lee, Il-Nam Kim, Jinyoung Jung, Kyung-Hoon Shin, Sun-Yong Ha, Spatial distribution and origin of organic matters in an Arctic fjord system based on lipid biomarkers (n-alkanes and sterols),Environmental Research
15. Yichao Yang, Jingling Ren, and Zhuoyi Zhu: Distributions and Influencing Factors of Dissolved Manganese in Kongsfjorden and Ny-Ålesund, Svalbard. ACS Earth and Space Chemistry
16. Jihee Kim, Sae Yun Kwon, Kitae Kim, Seunghee Han, Import, export, and speciation of mercury in Kongsfjorden, Svalbard: Influences of glacier melt and river discharge, Marine Pollution Bulletin
17. Eleonora Fossile, Maria Pia Nardelli, Hélène Howa, Agnès Baltzer, Yohann Poprawski, Ilaria Baneschi, Marco Doveri, Meryem Mojtahid, Influence of modern environmental gradients on foraminiferal faunas in the inner Kongsfjorden (Svalbard), Marine Micropaleontology
18. Schimani, K., Zacher, K., Jerosch, K. et al. Video survey of deep benthic macroalgae and macroalgal detritus along a glacial Arctic fjord: Kongsfjorden (Spitsbergen). Polar Biol
19. Subeesh M.P., Divya David T., Ravichandran M., Sourav Chatterjee, Ankit Pramanik, M. Nuncio, Near-inertial waves in an Arctic fjord and their impact on vertical mixing of Atlantic water mass, Progress in Oceanography
20. Lisa C. Herbert, Alexander B. Michaud, Katja Laufer-Meiser, Clara J.M. Hoppe, Qingzhi Zhu, Robert C. Aller, Bo Barker Jørgensen, Laura M. Wehrmann, Tight benthic-pelagic coupling drives seasonal and interannual changes in iron-sulfur cycling in Arctic fjord sediments (Kongsfjorden, Svalbard), Journal of Marine Systems